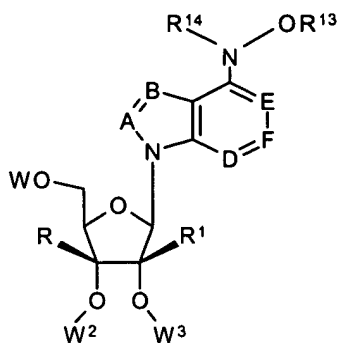


WHAT IS CLAIMED IS:

1. A compound of Formula I:



I

wherein R and R¹ are independently selected from the group consisting of:

hydrogen,
alkyl,
substituted alkyl,
alkenyl,
substituted alkenyl,
alkynyl,
substituted alkynyl;

R¹³ is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

R¹⁴ is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

A, B, D, and E are independently selected from the group consisting of
>N, >CH, >C-CN, >C-NO₂, >C-alkyl, >C-substituted alkyl, >C-alkenyl,
>C-substituted alkenyl, >C-alkynyl, >C-substituted alkynyl, >C-NHCONH₂,
>C-CONR¹⁵R¹⁶, >C-COOR¹⁵, >C-hydroxy, >C-alkoxy, >C-amino,
>C-alkylamino, >C-dialkylamino, >C-halogen, >C-(1,3-oxazol-2-yl),

>C-(1,3-oxazol-5-yl), >C-(1,3-thiazol-2-yl), >C-(imidazol-2-yl), >C-(2-oxo-[1,3]dithiol-4-yl), >C-(furan-2-yl), and >C-(2H-[1,2,3]triazol-4-yl);

F is selected from >N, >C-CN, >C-NO₂, >C-alkyl, >C-substituted alkyl, >C-alkenyl, >C-substituted alkenyl, >C-alkynyl, >C-substituted alkynyl, >C-NHCONH₂, >C-CONR¹⁵R¹⁶, >C-COOR¹⁵, >C-alkoxy, >C-(1,3-oxazol-2-yl), >C-(1,3-oxazol-5-yl), >C-(1,3-thiazol-2-yl), >C-(imidazol-2-yl), >C-(2-oxo-[1,3]dithiol-4-yl), >C-(furan-2-yl), >C-(2H-[1,2,3]triazol-4-yl), and >C-Y, where Y is selected from the group consisting of hydrogen, halo, hydroxy, alkylthioether, and -NR³R⁴ where R³ and R⁴ are independently selected from the group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted heterocyclic and where R³ and R⁴ are joined to form, together with the nitrogen atom bond thereto, a heterocyclic group, provided that only one of R³ and R⁴ is hydroxy, alkoxy, or substituted alkoxy;

R¹⁵ and R¹⁶ are independently selected from the group consisting of:

hydrogen,
alkyl,
substituted alkyl,
cycloalkyl,
substituted cycloalkyl,
aryl,
substituted aryl,
heteroaryl,
substituted heteroaryl, and

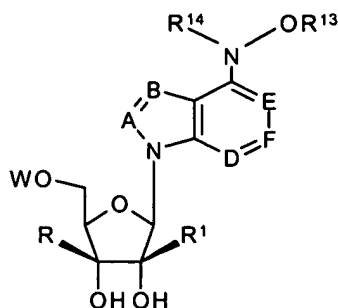
R¹⁵ and R¹⁶ together with the nitrogen atom to which they are attached may form a heterocycloalkyl, substituted heterocycloalkyl, heteroaryl, or substituted heteroaryl;

W, W², and W³ are independently selected from the group consisting of:

- hydrogen,
a phosphate,
a phosphonate,
a monofluorophosphate,
5 acyl,
a sulfonate ester,
a lipid,
an amino acid,
a carbohydrate,
10 a peptide, and
cholesterol;
and pharmaceutically acceptable prodrugs and salts thereof;
provided that the compound of Formula I is not:
- a) 9-(β -D-ribofuranosyl)-6-hydroxylaminopurine;
15 b) 7-(β -D-ribofuranosyl)-4-hydroxylamino-pyrrolo[2,3-
d]pyrimidine;
c) 9-(2'-C-methyl- α -D-ribofuranosyl)-6-hydroxylaminopurine;
d) 9-(5'-O-monophosphate- β -D-ribofuranosyl)-6-
hydroxylaminopurine; and
20 e) 9-(5'-O-triphosphate- β -D-ribofuranosyl)-6-hydroxylaminopurine.

2. The compound according to Claim 1, wherein R and R¹ are not both hydrogen.

25 3. A compound of Formula IA:



IA

wherein R and R¹ are independently selected from the group consisting of:

- hydrogen,
- alkyl,
- substituted alkyl,
- alkenyl,
- substituted alkenyl,
- alkynyl,
- substituted alkynyl;

provided that R and R¹ are not both hydrogen;

R¹³ is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

R¹⁴ is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

A, B, D, and E are independently selected from the group consisting of >N, >CH, >C-CN, >C-NO₂, >C-alkyl, >C-substituted alkyl, >C-NHCONH₂, >C-CONR¹⁵R¹⁶, >C-COOR¹⁵, >C-hydroxy, >C-alkoxy, >C-amino, >C-alkylamino, >C-dialkylamino, >C-halogen, >C-(1,3-oxazol-2-yl), >C-(1,3-thiazol-2-yl) and >C-(imidazol-2-yl);

F is selected from >N, >CH, >C-CN, >C-NO₂, >C-alkyl, >C-substituted alkyl, >C-NHCONH₂, >C-CONR¹⁵R¹⁶, >C-COOR¹⁵, >C-alkoxy, >C-(1,3-oxazol-2-yl), >C-(1,3-thiazol-2-yl), >C-(imidazol-2-yl), and >C-Y,

where Y is selected from the group consisting of hydrogen, halo, hydroxy, alkylthioether, and $-NR^3R^4$ where R^3 and R^4 are independently selected from the group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted heterocyclic and where R^3 and R^4 are joined to form, together with the nitrogen atom bond thereto, a heterocyclic group, provided that only one of R^3 and R^4 is hydroxy, alkoxy, or substituted alkoxy;

R^{15} and R^{16} are independently selected from the group consisting of:

hydrogen,
alkyl,
substituted alkyl,
cycloalkyl,
substituted cycloalkyl,
aryl,
substituted aryl,
heteroaryl,
substituted heteroaryl, and
 R^{15} and R^{16} together with the nitrogen atom to which they are attached may form a heterocycloalkyl, substituted heterocycloalkyl, heteroaryl, or substituted heteroaryl;

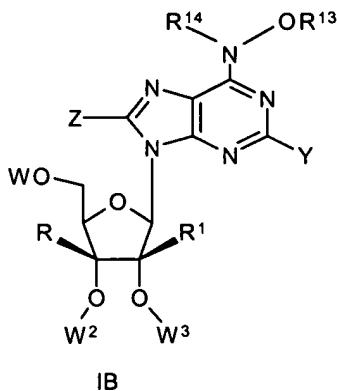
W is selected from the group consisting of:

hydrogen,
a phosphate,
a phosphonate,
acyl,
alkyl,
a sulfonate ester,
a lipid,

an amino acid,
a carbohydrate,
a peptide, and
cholesterol;
5 and pharmaceutically acceptable salts thereof
provided that the compound of Formula IA is not 9-(2'-C-methyl- α -D-
ribofuranosyl)-6-hydroxylaminopurine.

4. A compound of Formula IB:

10



wherein R and R¹ are independently selected from the group consisting
of:

15 hydrogen,
alkyl,
substituted alkyl,
alkenyl,
substituted alkenyl,
20 alkynyl, and
substituted alkynyl;

R¹³ is selected from the group consisting of hydrogen, alkyl, and
substituted alkyl;

R^{14} is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

Y is selected from the group consisting of:

5 hydrogen,
 halo,
 hydroxy,
 alkylthioether,
 - NR^3R^4 where R^3 and R^4 are independently selected from the
10 group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl,
 substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl,
 substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted
 heterocyclic and where R^3 and R^4 are joined to form, together with the nitrogen
 atom bond thereto, a heterocyclic group, provided that only one of R^3 and R^4 is
 hydroxy, alkoxy, or substituted alkoxy;

15 Z is selected from the group consisting of:

 hydrogen,
 halo,
 hydroxy,
 alkyl,
20 substituted alkyl,
 alkenyl,
 substituted alkenyl,
 alkynyl,
 substituted alkynyl,
25 cyano,
 carboxyl,
 carboxyl ester,
 acylamino,
 1,3-oxazol-2-yl,

1,3-oxazol-5-yl,
1,3-thiazol-2-yl,
imidazol-2-yl,
2-oxo-[1,3]dithiol-4-yl,
5 furan-2-yl,
2H-[1,2,3]triazol-4-yl, and
-NR³R⁴ where R³ and R⁴ are independently selected from the
group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl,
substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl,
10 substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted
heterocyclic and where R³ and R⁴ are joined to form, together with the nitrogen
atom bond thereto, a heterocyclic group, provided that only one of R³ and R⁴ is
hydroxy, alkoxy, or substituted alkoxy;

W, W², and W³ are independently selected from the group consisting of:
15 hydrogen,
a phosphate,
a phosphonate,
a monofluorophosphate
acyl,
20 a sulfonate ester,
a lipid,
an amino acid,
a carbohydrate,
a peptide, and
25 cholesterol;

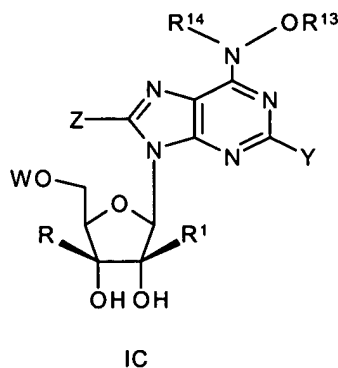
and pharmaceutically acceptable prodrugs and salts thereof;
provided that the compound if Formula IB is not

- a) 9-(β-D-ribofuranosyl)-6-hydroxylaminopurine;
- b) 9-(2'-C-methyl-α-D-ribofuranosyl)-6-hydroxylaminopurine;

- c) 9-(5'-O-monophosphate-β-D-ribofuranosyl)-6-hydroxylaminopurine; and
d) 9-(5'-O-triphosphate-β-D-ribofuranosyl)-6-hydroxylaminopurine.

5 5. The compound according to Claim 4, wherein at least one of R and R¹ is other than hydrogen.

10 6. A compound of Formula IC:



wherein R and R¹ are independently selected from the group consisting of:

- hydrogen,
alkyl,
substituted alkyl,
alkenyl,
substituted alkenyl,
alkynyl, and
substituted alkynyl,
provided that R and R¹ are not both hydrogen;

R^{13} is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

R^{14} is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

5 Y is selected from the group consisting of:

hydrogen,
halo,
hydroxy,
alkylthioether,

10 $-NR^3R^4$ where R^3 and R^4 are independently selected from the group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted heterocyclic and where R^3 and R^4 are joined to form, together with the nitrogen atom bond thereto, a heterocyclic group, provided that only one of R^3 and R^4 is
15 hydroxy, alkoxy, or substituted alkoxy;

Z is selected from the group consisting of:

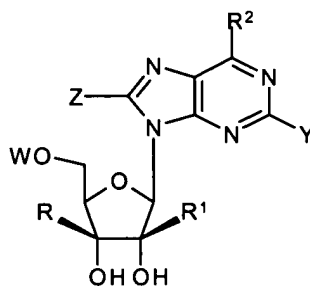
hydrogen,
halo,
20 hydroxy,
alkyl, and

25 $-NR^3R^4$ where R^3 and R^4 are independently selected from the group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted heterocyclic and where R^3 and R^4 are joined to form, together with the nitrogen atom bond thereto, a heterocyclic group, provided that only one of R^3 and R^4 is hydroxy, alkoxy, or substituted alkoxy;

W is selected from the group consisting of:

hydrogen,
a phosphate,
a phosphonate,
acyl,
5 a sulfonate ester,
a lipid,
an amino acid,
a carbohydrate,
a peptide, and
10 cholesterol;
and pharmaceutically acceptable salts thereof;
provided that the compound of Formula IC is not 9-(2'-C-methyl- α -D-
ribofuranosyl)-6-(-S or R Inactive-)-hydroxylaminopurine.

15 7. A compound of Formula IC-A:



IC-A

wherein R and R¹ are independently selected from the group consisting
of:

20 hydrogen,
alkyl,
substituted alkyl,
alkenyl,

substituted alkenyl,

alkynyl, and

substituted alkynyl,

provided that R and R¹ are not both hydrogen;

5 R² is -NR^{3'}R^{4'} where R^{3'} is hydrogen and R^{4'} is hydroxy or alkoxy;

Y is selected from the group consisting of:

hydrogen,

halo,

hydroxy,

10 alkylthioether,

-NR³R⁴ where R³ and R⁴ are independently selected from the

group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted

alkenyl, alkynyl, substituted alkynyl, alkoxy, aryl, substituted aryl, heteroaryl,

substituted heteroaryl, heterocyclic, substituted heterocyclic and where R³ and R⁴

15 is joined to form, together with the nitrogen atom bond thereto, a heterocyclic group;

Z is selected from the group consisting of:

hydrogen,

halo,

20 hydroxy, and

-NR³R⁴ where R³ and R⁴ are independently selected from the

group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted

alkenyl, alkynyl, substituted alkynyl, alkoxy, aryl, substituted aryl, heteroaryl,

substituted heteroaryl, heterocyclic, substituted heterocyclic and where R³ and R⁴

25 are joined to form, together with the nitrogen atom bond thereto, a heterocyclic group;

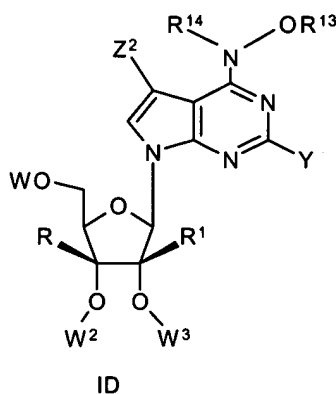
W is selected from the group consisting of:

hydrogen,

a phosphate,

acyl,
a sulfonate ester,
a lipid,
an amino acid,
5 a carbohydrate,
a peptide, and
cholesterol;
and pharmaceutically acceptable salts thereof;
provided that the compound if Formula IC-A is not 9-(2'-C-methyl- α -
10 D-ribofuranosyl)-6-hydroxylaminopurine.

8. A compound of Formula ID:



15 wherein R and R¹ are independently selected from the group consisting of:
hydrogen,
alkyl,
substituted alkyl,
20 alkenyl,
substituted alkenyl,
alkynyl, and
substituted alkynyl;

R^{13} is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

R^{14} is selected from the group consisting of hydrogen, alkyl, and substituted alkyl;

5 Y is selected from the group consisting of:

hydrogen,
halo,
hydroxy,
alkylthioether, and

10 $-NR^3R^4$ where R^3 and R^4 are independently selected from the group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted heterocyclic and where R^3 and R^4 are joined to form, together with the nitrogen
15 atom bond thereto, a heterocyclic group, provided that only one of R^3 and R^4 is hydroxy, alkoxy, or substituted alkoxy;

Z^2 is selected from the group consisting of:

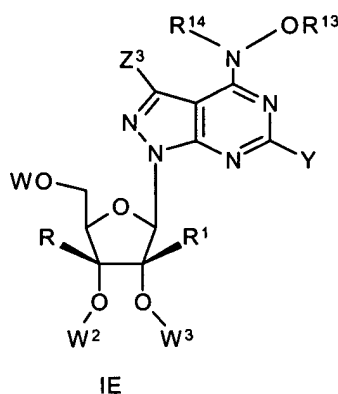
hydrogen,
halo,
20 hydroxy,
alkyl,
substituted alkyl,
alkenyl,
substituted alkenyl,
25 alkynyl,
substituted alkynyl,
cyano
carboxyl,
carboxyl ester,

acylamino,
1,3-oxazol-2-yl,
1,3-oxazol-5-yl,
1,3-thiazol-2-yl,
5 imidazol-2-yl,
2-oxo-[1,3]dithiol-4-yl,
furan-2-yl,
2H-[1,2,3]triazol-4-yl, and
-NR³R⁴ where R³ and R⁴ are independently selected from the
10 group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl,
substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl,
substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted
heterocyclic and where R³ and R⁴ are joined to form, together with the nitrogen
atom bond thereto, a heterocyclic group, provided that only one of R³ and R⁴ is
15 hydroxy, alkoxy, or substituted alkoxy;
W, W², and W³ are independently selected from the group consisting of:
hydrogen,
a phosphate,
phosphonate,
20 monofluorophosphate
acyl,
alkyl,
a sulfonate ester,
a lipid,
25 an amino acid,
a carbohydrate,
a peptide, and
cholesterol;
and pharmaceutically acceptable prodrugs and salts thereof;

provided that the compound of Formula ID is not 7-(β -D-ribofuranosyl)-4-hydroxylamino-pyrrolo[2,3-d]pyrimidine.

9. The compound according to Claim 8 wherein at least one of R or R¹ is
5 other than hydrogen.

10. A compound of Formula IE:



10 wherein R and R¹ are independently selected from the group consisting
of:

hydrogen,
alkyl,
substituted alkyl,
15 alkenyl,
substituted alkenyl,
alkynyl, and
substituted alkynyl;

R¹³ is selected from the group consisting of hydrogen, alkyl, and
20 substituted alkyl;

R¹⁴ is selected from the group consisting of hydrogen, alkyl, and
substituted alkyl;

Y is selected from the group consisting of:

hydrogen,
halo,
hydroxy,
alkylthioether, and
5 -NR³R⁴ where R³ and R⁴ are independently selected from the
group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl,
substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl,
substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted
heterocyclic and where R³ and R⁴ are joined to form, together with the nitrogen
10 atom bond thereto, a heterocyclic group, provided that only one of R³ and R⁴ is
hydroxy, alkoxy, or substituted alkoxy;

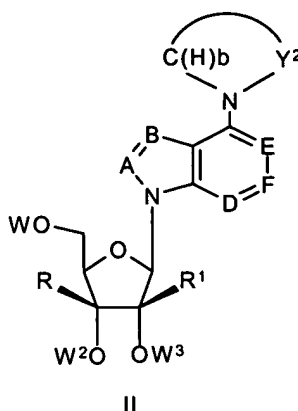
Z³ is selected from the group consisting of:

hydrogen,
halo,
15 hydroxy,
alkyl,
substituted alkyl,
alkenyl,
substituted alkenyl,
20 alkynyl,
substituted alkynyl,
cyano
carboxyl,
carboxyl ester,
25 acylamino,
1,3-oxazol-2-yl,
1,3-oxazol-5-yl,
1,3-thiazol-2-yl,
imidazol-2-yl,

- 2-oxo-[1,3]dithiol-4-yl,
furan-2-yl,
2H-[1,2,3]triazol-4-yl, and
-NR³R⁴ where R³ and R⁴ are independently selected from the
5 group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl,
substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl,
substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted
heterocyclic and where R³ and R⁴ are joined to form, together with the nitrogen
atom bond thereto, a heterocyclic group, provided that only one of R³ and R⁴ is
10 hydroxy, alkoxy, or substituted alkoxy;
W, W², and W³ are independently selected from the group consisting of:
hydrogen,
a phosphate,
a phosphonate,
15 a monofluorophosphate,
acyl,
a sulfonate ester,
a lipid,
an amino acid,
20 a carbohydrate,
a peptide, and
cholesterol;
and pharmaceutically acceptable prodrugs and salts thereof.

25 11. The compound according to Claim 10, wherein at least one of
R and R¹ is other than hydrogen.

12. A compound of formula II:



wherein R and R¹ are independently selected from the group consisting
of:

- hydrogen,
- 5 alkyl,
- substituted alkyl,
- alkenyl,
- substituted alkenyl,
- alkynyl, and
- 10 substituted alkynyl;

Y² is CH₂, N, O, S, SO, or SO₂;

N together with -C(H)_b and Y² forms a heterocyclic, substituted heterocyclic,
heteroaryl or substituted heteroaryl group wherein each of said heterocyclic, substituted
heterocyclic, heteroaryl or substituted heteroaryl group is optionally fused to form a bi-
15 or multi-fused ring system (preferably no more than 5 fused rings) with one or more ring
structures selected from the group consisting of cycloalkyl, cycloalkenyl, heterocyclic,
aryl and heteroaryl group which, in turn, each of such ring structures is optionally
substituted with 1 to 4 substituents selected from the group consisting of hydroxyl, halo,
alkoxy, substituted alkoxy, thioalkyl, substituted thioalkyl, aryl, heteroaryl, heterocyclic,
20 nitro, cyano, carboxyl, carboxyl esters, alkyl, substituted alkyl, alkenyl, substituted
alkenyl, alkynyl, substituted alkynyl, amino, and substituted amino;

b is an integer equal to 0 or 1;

A, B, D, and E are independently selected from the group consisting of
>N, >CH, >C-CN, >C-NO₂, >C-alkyl, >C-substituted alkyl, >C-alkenyl,
>C-substituted alkenyl, >C-alkynyl, >C-substituted alkynyl, >C-NHCONH₂,
>C-CONR¹⁵R¹⁶, >C-COOR¹⁵, >C-hydroxy, >C-alkoxy, >C-amino,
5 >C-alkylamino, >C-dialkylamino, >C-halogen, >C-(1,3-oxazol-2-yl),
>C-(1,3-oxazol-5-yl), >C-(1,3-thiazol-2-yl), >C-(imidazol-2-yl), >C-(2-oxo-
[1,3]dithiol-4-yl), >C-(furan-2-yl), and >C-(2H-[1,2,3]triazol-4-yl);

F is selected from >N, >C-CN, >C-NO₂, >C-alkyl, >C-substituted alkyl,
>C-alkenyl, >C-substituted alkenyl, >C-alkynyl, >C-substituted alkynyl,
10 >C-NHCONH₂, >C-CONR¹⁵R¹⁶, >C-COOR¹⁵, >C-alkoxy, >C-(1,3-oxazol-2-yl),
>C-(1,3-oxazol-5-yl), >C-(1,3-thiazol-2-yl), >C-(imidazol-2-yl), >C-(2-oxo-
[1,3]dithiol-4-yl), >C-(furan-2-yl), >C-(2H-[1,2,3]triazol-4-yl), and >C-Y, where
Y is selected from the group consisting of hydrogen, halo, hydroxy,
alkylthioether, and -NR³R⁴ where R³ and R⁴ are independently selected from the
15 group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl,
substituted alkenyl, alkynyl, substituted alkynyl, alkoxy, substituted alkoxy, aryl,
substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted
heterocyclic and where R³ and R⁴ are joined to form, together with the nitrogen
atom bond thereto, a heterocyclic group, provided that only one of R³ and R⁴ are
20 hydroxy, alkoxy, or substituted alkoxy;

R¹⁵ and R¹⁶ are independently selected from the group consisting of:

hydrogen,
alkyl,
substituted alkyl,
25 cycloalkyl,
substituted cycloalkyl,
aryl,
substituted aryl,
heteroaryl,

substituted heteroaryl, and

R¹⁵ and R¹⁶ together with the nitrogen atom to which they are attached may form a heterocycloalkyl, substituted heterocycloalkyl, heteroaryl, or substituted heteroaryl;

5 W, W², and W³ are independently selected from the group consisting of:

hydrogen,

a phosphate,

a phosphonate,

10 a monofluorophosphate,

acyl,

a sulfonate ester,

a lipid,

an amino acid,

15 a carbohydrate,

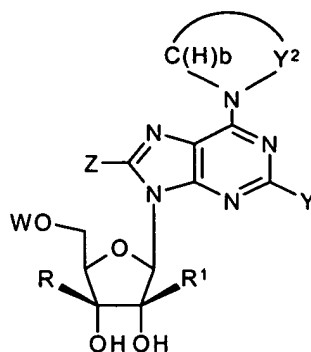
a peptide, and

cholesterol;

and pharmaceutically acceptable salts thereof.

20 13. The compound according to Claim 12, wherein at least one of R and R¹ is other than hydrogen.

14. A compound of Formula IIA:



IIA

wherein R and R¹ are independently selected from the group consisting
of:

- 5 hydrogen,
 alkyl,
 substituted alkyl,
 alkenyl,
 substituted alkenyl,
10 alkynyl, and
 substituted alkynyl,
 provided that R and R¹ are not both hydrogen;

Y² is CH₂, N, O, S, SO, or SO₂;

- 15 N together with -C(H)_b and Y² forms a heterocyclic, substituted heterocyclic,
heteroaryl or substituted heteroaryl group wherein each of said heterocyclic, substituted
heterocyclic, heteroaryl or substituted heteroaryl group is optionally fused to form a bi-
or multi-fused ring system (preferably no more than 5 fused rings) with one or more ring
structures selected from the group consisting of cycloalkyl, cycloalkenyl, heterocyclic,
aryl and heteroaryl group which, in turn, each of such ring structures is optionally
20 substituted with 1 to 4 substituents selected from the group consisting of hydroxyl, halo,
alkoxy, substituted alkoxy, thioalkyl, substituted thioalkyl, aryl, heteroaryl, heterocyclic,

nitro, cyano, carboxyl, carboxyl esters, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, amino, and substituted amino;

b is an integer equal to 0 or 1;

W is selected from the group consisting of:

- 5 hydrogen,
- a phosphate,
- a phosphonate,
- acyl,
- alkyl,
- 10 a sulfonate ester,
- a lipid,
- an amino acid,
- a carbohydrate,
- a peptide, and
- 15 cholesterol;

Y is selected from the group consisting of Y is selected from the group consisting of:

- hydrogen,
- halo,
- 20 hydroxy,
- alkylthioether, and
- NR³R⁴ where R³ and R⁴ are independently selected from the
- group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl,
- substituted alkenyl, alkynyl and substituted alkynyl, alkoxy, substituted alkoxy,
- 25 aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted
- heterocyclic and where R³ and R⁴ are joined to form, together with the nitrogen
- atom bond thereto, a heterocyclic group, provided that only one of R³ and R⁴ is
- hydroxy, alkoxy, or substituted alkoxy;

Z is selected from the group consisting of:

hydrogen,

halo,

hydroxy,

alkyl, and

- 5 -NR³R⁴ where R³ and R⁴ are independently selected from the group consisting of hydrogen, hydroxy, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl and substituted alkynyl, alkoxy, substituted alkoxy, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocyclic, substituted heterocyclic and where R³ and R⁴ are joined to form, together with the nitrogen atom bond thereto, a
10 heterocyclic group, provided that only one of R³ and R⁴ is hydroxy, alkoxy, or substituted alkoxy;
and pharmaceutically acceptable salts thereof.

- 15 15. The compound according to any of Claims 1-11 wherein R¹⁴ is hydrogen and R¹³ is selected from the group consisting of alkyl and hydrogen.

16. The compound according to Claim 15, wherein R¹⁴ is hydrogen and R¹³ is selected from the group consisting of hydrogen, methyl, ethyl, and *n*-propyl.

20

17. The compound according to any of Claims 1-16, wherein R is hydrogen and R¹ is selected from the group consisting of methyl, vinyl, allyl, acetylenyl, propargyl, and trifluoromethyl.

- 25 18. The compound according to Claim 1, wherein A is >CH, B is >N, D is >N, F is >CH or >C-Y and E is >N.

19. The compound according to Claim 1, wherein A is >CH, B is >C-Q, D is >N, F is >CH or >C-Y and E is >N where Q is selected from the group

consisting of hydrogen, halo, cyano, acylamido, alkyl, alkenyl, alkynyl, and heteroaryl.

20. The compound according to Claim 20, wherein Q is selected from
5 the group consisting of hydrogen, chloro, bromo, cyano, $\text{H}_2\text{NC(O)-}$, methyl, ethyl, vinyl, acetylenyl and oxazidin-2-yl.

21. The compound according to Claim 1, wherein A is $>\text{N}$, B is $>\text{C-Q}$,
D is $>\text{N}$, F is $>\text{CH}$ or $>\text{C-Y}$ and E is $>\text{N}$ where Q is selected from the group
10 consisting of hydrogen, halo, cyano, acylamido, alkyl, alkenyl and alkynyl.

22. The compound according to Claim 21, wherein Q is selected from
the group consisting of hydrogen, chloro, bromo, cyano, $\text{H}_2\text{NC(O)-}$, methyl,
ethyl, vinyl and acetylenyl.

23. The compound according to any of Claims 1, 3, 4, 6, 7, 8, 10, 12,
15 and 14, wherein W is selected from the group consisting of hydrogen, acyl or triphosphate.

24. The compound according to any of Claims 1, 4, 8, 10 and 12,
20 wherein W^2 and W^3 are hydrogen or acyl.

25. The compound according to Claim 24, wherein W^2 is hydrogen or
acyl and W^3 is hydrogen.

26. The compound according to Claim 25, wherein W^2 is acyl.
25

27. The compound according to Claim 26, wherein said acyl group is
selected from the group consisting of acyl groups are derived from amino acids,
trimethylacetyl, and acetyl.

28. The compound according to either Claim 12 or 14, wherein N together with -C(H)_b and Y² forms a heterocyclic or substituted heterocyclic group.

29. The compound according to Claim 28, wherein said heterocyclic or substituted heterocyclic group is selected from the group consisting of 2-carboxamido-pyrrolidin-1-yl, piperidin-1-yl, N-morpholino, N-thiomorpholino, azetidin-1-yl, pyrrolin-1-yl, 1,2,3,4-tetrahydropyridin-1-yl, 1,2,3,4-tetrahydroisoquinolin-2-yl, and 1,3,4,9-tetrahydro-beta-carbolin-2-yl.

30. A compound selected from the group consisting of:
9-(2'-C-methyl-β-D-ribofuranosyl)- 6- hydroxylaminopurine;
9-(2'-C-methyl-β-D-ribofuranosyl)- 6- methoxylaminopurine;
9-(2'-C-methyl-β-D-ribofuranosyl)- 6- propoxylaminopurine;
7-(2'-C-methyl-β-D-ribofuranosyl)- 4- hydroxylamino-pyrrolo[2,3-d]pyrimidine;
7-(2'-C-methyl-β-D-ribofuranosyl)- 4- methoxylamino-pyrrolo[2,3-d]pyrimidine;
1-(2'-C-methyl-β-D-ribofuranosyl)- 4- methoxylamino-pyrazolo[3,4-d]pyrimidine;
1-(2'-C-methyl-β-D-ribofuranosyl)- 4- hydroxylamino-pyrazolo[3,4-d]pyrimidine;
7-(2'-C-methyl-β-D-ribofuranosyl)- 5-chloro-4- hydroxylamino-pyrrolo[2,3-d]pyrimidine;
7-(2'-C-methyl-β-D-ribofuranosyl)- 5-bromo-4- hydroxylamino-pyrrolo[2,3-d]pyrimidine;
7-(2'-C-methyl-β-D-ribofuranosyl)- 5-methyl-4- hydroxylamino-pyrrolo[2,3-d]pyrimidine;
7-(2'-C-methyl-β-D-ribofuranosyl)- 5-cyano-4- hydroxylamino-pyrrolo[2,3-d]pyrimidine;

7-(2'-C-methyl- β -D-ribofuranosyl)-4- hydroxylamino-pyrrolo[2,3-d]pyrimidine
5-carboxyl amide;

7-(2'-C-methyl- β -D-ribofuranosyl)-5-ethyl-4- hydroxylamino-pyrrolo[2,3-
d]pyrimidine;

5 7-(2'-C-methyl- β -D-ribofuranosyl)- 5-bromo-4- methoxylamino-pyrrolo[2,3-
d]pyrimidine;

7-(2'-C-methyl- β -D-ribofuranosyl)- 5-methyl-4- methoxylamino-pyrrolo[2,3-
d]pyrimidine;

10 7-(2'-C-methyl- β -D-ribofuranosyl)- 5-cyano-4- methoxylamino-pyrrolo[2,3-
d]pyrimidine;

7-(2'-C-methyl- β -D-ribofuranosyl)-4- methoxylamino-pyrrolo[2,3-d]pyrimidine
5-carboxyl amide;

1-(2'-C-methyl- β -D-ribofuranosyl)-3-bromo- 4- hydroxylamino-pyrazolo[3,4-
d]pyrimidine;

15 1-(2'-C-methyl- β -D-ribofuranosyl)-3-methyl- 4- hydroxylamino-pyrazolo[3,4-
d]pyrimidine;

1-(2'-C-methyl- β -D-ribofuranosyl)-3-cyano- 4- hydroxylamino-pyrazolo[3,4-
d]pyrimidine;

20 1-(2'-C-methyl- β -D-ribofuranosyl) - 4- methoxylamino-pyrazolo[3,4-
d]pyrimidine- 3-carboxamide;

1-(2'-C-methyl- β -D-ribofuranosyl)-3-bromo- 4- methoxylamino-pyrazolo[3,4-
d]pyrimidine;

1-(2'-C-methyl- β -D-ribofuranosyl)-3-methyl- 4- methoxylamino-pyrazolo[3,4-
d]pyrimidine;

25 1-(2'-C-methyl- β -D-ribofuranosyl)-3-cyano- 4- methoxylamino-pyrazolo[3,4-
d]pyrimidine;

1-(2'-C-methyl- β -D-ribofuranosyl) - 4- methoxylamino-pyrazolo[3,4-
d]pyrimidine- 3-carboxamide;

- 9-(2'-C-methyl- β -D-ribofuranosyl)-6-(-S or R)-hydroxylaminopurine;
9-(2'-C-methyl-5'-O-triphosphate- β -D-ribofuranosyl)-6-(-S or R)-
hydroxylaminopurine;
7-(β -D-ribofuranosyl)-4-hydroxylamino-pyrrolo[2,3-d]pyrimidine;
5 7-(2'-C-methyl- β -D-ribofuranosyl)-4-hydroxylamino-5-ethynyl-pyrrolo[2,3-
d]pyrimidine;
7-(2'-C-methyl- β -D-ribofuranosyl)-4-hydroxylamino-5-ethenyl-pyrrolo[2,3-
d]pyrimidine;
7-(2'-C-methyl- β -D-ribofuranosyl)-4-hydroxylamino-5-(1,3-oxazol-5-yl)-
10 pyrrolo[2,3-d]pyrimidine;
6-hydroxylamino-9-(2'-C-methyl-3',5-diphosphite- β -D-ribofuranosyl)purine;
9-(2'-C-methyl- β -D-ribofuranosyl)-6-[2-aminocarbonyl-(pyrrolidine-1-yl)]-
purine;
9-(2'-C-methyl- β -D-ribofuranosyl)-6-(1,3,4,9-tetrahydro-beta-carbolin-2-
15 yl)purine;
9-(2'-C-methyl- β -D-ribofuranosyl)-6-(piperidin-1-yl)purine;
9-(2'-C-trifluoromethyl- β -D-ribofuranosyl)-6-[2-aminocarbonyl-(pyrrolidine-1-
yl)]-purine;
20 9-(2'-C-ethenyl- β -D-ribofuranosyl)-6-[2-aminocarbonyl-(pyrrolidine-1-yl)]-
purine;
9-(2'-C-ethynyl- β -D-ribofuranosyl)-6-[2-aminocarbonyl-(pyrrolidine-1-yl)]-
purine;
9-(2'-C-methyl- β -D-ribofuranosyl)-6-(azetidin-1-yl)purine;
25 9-(2'-C-methyl- β -D-ribofuranosyl)-6-(pyrrolidin-1-yl)purine;
9-(2'-C-methyl- β -D-ribofuranosyl)-6-(3,6-dihydro-2H-pyridin-1-yl)purine; and
9-(2'-C-methyl- β -D-ribofuranosyl)-6-(3,4-dihydro-1H-isoquinolin-2-yl)purine.

31. A pharmaceutical composition comprising a pharmaceutically acceptable diluent and a therapeutically effective amount of a compound or mixture of compounds according to any of Claims 1-30.

5 32. A method for treating HCV in a mammal which method comprises administering to said mammal diagnosed with HCV or at risk of developing HCV a therapeutically effective amount of a compound or mixtures of one or more compounds according to any of Claims 1-30.

10 33. A method for treating HCV in a mammal which method comprises administering to said mammal diagnosed with HCV or at risk of developing HCV a therapeutically effective amount of a pharmaceutical composition according to Claim 31.

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